

WHAT IS CLAIMED IS:

1. A winding support structure for use with a superconducting rotor, said support structure comprising:
  - a binding ring;
  - a lamination coupled to said binding ring, said lamination having a slot formed therein for receiving a winding; and
  - a tie coupled to said lamination and said binding ring to enable said winding to be held within said slot.
2. The winding support structure of claim 1 wherein said tie is arranged around a portion of said lamination and a portion of said binding ring.
3. The winding support structure of claim 1 wherein said lamination includes a first tooth and a second tooth, said slot being defined between said first tooth and said second tooth, and said first tooth and said second tooth being integral with said lamination.
4. The winding support structure of claim 3 wherein said lamination includes a third tooth integral with said lamination to define another slot between said second tooth and said third tooth to receive said winding.
5. The winding support structure of claim 1 further comprising a felt ring arranged around an outer circumference of said binding ring so that said felt ring is arranged between said binding ring and said lamination.
6. The winding support structure of claim 1 further comprising a tire arranged around an outer circumference of said binding ring so that said tire is arranged between said binding ring and said lamination.

7. The winding support structure of claim 1 further comprising another tie coupled to said binding ring.

8. A winding support structure for use with a superconducting rotor, said support structure comprising:

a binding ring;

first and second non-magnetic boards coupled to said binding ring; and

a lamination coupled to said first and second non-magnetic boards so that a slot is defined between said first and second non-magnetic boards and between said binding ring and said lamination for receiving a winding.

9. The winding support structure of claim 8 wherein a clearance space in said slot is filled with an RTV or an epoxy.

10. The winding support structure of claim 8 further comprising a tire arranged around an outer circumference of said binding ring so that said tire is arranged between said binding ring and said lamination.

11. The winding support structure of claim 8 further comprising a third non-magnetic board coupled to said lamination and said binding ring so that another slot is defined between said second and third non-magnetic boards and between said binding ring and said lamination for receiving said winding.

12. The winding support structure of claim 8 further comprising another binding ring coupled to said first and second non-magnetic boards.

13. A method of forming a winding support structure for use with a superconducting rotor comprising:

providing a binding ring;

forming a slot in a lamination to receive a winding; and

coupling said lamination to said binding ring by arranging a tie around a portion of said lamination and a portion of said binding ring to enable said winding to be held within said slot.

14. The method of claim 13 wherein forming said slot in said lamination includes forming a first tooth and a second tooth integral with said lamination, said slot being defined between said first tooth and said second tooth.

15. The method of claim 14 wherein forming said lamination includes forming a third tooth integral with said lamination to define another slot between said second tooth and said third tooth to receive said winding.

16. The method of claim 13 further comprising arranging a felt ring around an outer circumference of said binding ring so that said felt ring is arranged between said binding ring and said lamination.

17. The method of claim 13 further comprising arranging a tire around an outer circumference of said binding ring so that said tire is arranged between said binding ring and said lamination.

18. The method of claim 13 further comprising coupling another tie to said binding ring.

19. A method of forming a winding support structure for use with a superconducting rotor comprising:

providing a binding ring;

coupling first and second non-magnetic boards to said binding ring;  
and

coupling a lamination to said first and second non-magnetic boards so that a slot for receiving a winding is defined between said first and second non-magnetic boards and between said binding ring and said lamination.

20. The method of claim 19 further comprising filling a clearance space in said slot with an RTV or an epoxy.

21. The method of claim 19 further comprising arranging a tire around an outer circumference of said binding ring so that said tire is arranged between said binding ring and said lamination.

22. The method of claim 19 further comprising coupling a third non-magnetic board to said binding ring and said lamination so that another slot is defined for receiving the winding between said second and third non-magnetic boards and between said binding ring and said lamination.

23. The method of claim 19 further comprising coupling another binding ring to said first and second non-magnetic boards.